

REMARKS/ARGUMENTS

The three-month due date for reply to the Office Action expired on December 2, 2008. Applicant has concurrently filed a request for a three-month extension of time. Please charge our deposit account number 02-2095 in the amount of \$1110.00, for the extension of time fee, under 37 C.F.R. 1.17(a)(3). Please also charge any additional fees that may be required, or credit any overpayment, to our deposit account.

Remarks Regarding Claim Amendments

Claim 7 has been amended to depend from claim 6 and to include that the vertically aligned surfaces between which the vertical clearance is provided are integrally molded with the respective master and sash frames.

Claim 9 has been amended to recite that the first cavity in an as-moulded and operating condition of the master frame and sash frame is open towards the lower horizontal master frame member, and that the first cavity receives therein an upper portion of the sash frame when the sash frame is lifted up relative to the master frame for installation and removal.

Support for the amendments to claims 7 and 9 can be found, for example, in paragraphs [0093] to [0096] and in Figures 5, 14 and 21 of the application as filed.

New claims 24 and 25 have been added, reciting that each surface of the integrally moulded unitary master frame and sash frame members is open to an exterior of the respective frame such that the frame is free of enclosed cavities. Support for new claim 24 can be found, for example, in the cross-sections shown in Figures 5, 6, and 10-12 of the application as filed.

New claim 26 recites that the tongues and grooves of claim 6 are integrally moulded with the respective master and sash frames, and that the tongues and grooves slidably support the sash and prevent lateral displacement of the sash away from the master frame when sliding the sash to any position between the first and second vertical jamb members. This is supported in the specification, for example, at paragraph [0093].

Applicant submits no new matter is added by this amendment.

Remarks Regarding s.103(a) Rejections

Claims 2-16

The Examiner rejected claims 2-16 as unpatentable over Davies (U.S. Pat. No. 5,280,686) in view of Kownacki et al. (U.S. Pat. No. 6,749,797).

The Applicant submits that the combination of Davies and Kownacki fails to establish a *prima facie* case of obviousness of the subject-matter of claim 2.

Filed herewith is a 37 C.F.R. s1.132 Declaration of Gabriel Petta, an expert in the field of window frame design and construction and named inventor of the present application. The facts set forth in Petta's declaration establish the following:

The gas-assisted injection-molding process of Kownacki et al. cannot be used to create a unitary frame having the shape taught by Davies. In other words, if a person skilled in the art were to try to produce the master frame and sash frame taught by Davies using the gas-assisted injection-molding process and apparatus taught by Kownacki et al., they could not produce a master frame having an integrally moulded mullion, as claimed in claim 2, and the finished frame could not be removed from the mould.

The Examiner asserted at page 9 of the Office Action that "the frames of Davies could be molded in a shape that could be easily ejected from the molds and then milled/shaped to reach the final desired configuration." Applicant submits that

there is insufficient evidence on the record to support this statement. It is not at all clear how one could modify the shape of Davies to be ejectable from a mold as taught by Kownacki, and arrive at a product that falls within the scope of the rejected claims. It has been established that during examination:

"it is never appropriate to rely solely on 'common knowledge' in the art without evidentiary support in the record, as the principal evidence upon which a rejection was based. The Office action cannot reach conclusions based on the Examiner's own understanding or experience, or on its assessment of what would be basic knowledge or common sense. Rather, the Office action must point to some concrete evidence in the record in support of these findings" [*Zurko*, 258 F.3d at 1385, 59 USPQ2d at 1697].

Applicant respectfully requests that further evidence be provided or that this rejection be withdrawn.

Furthermore, Applicant submits that the alleged combination of Davies and Kownacki would not have been obvious because aspects of Davies teach away from the use of gas-assisted injection molding. As mentioned in the Declaration (paragraphs 14 and 15), the corner joint assemblies of Davies require accurately formed inner wall surfaces which the gas-assist process of Kownacki cannot produce.

In view of all the above, Applicant respectfully requests reconsideration and withdrawal of the rejection of claim 2 as being obvious in view of Davies combined with Kownacki. Applicant submits that claim 2 is allowable over the art of record.

Claims 3-16 depend directly or indirectly from claim 2, and are therefore allowable for at least the same reasons as claim 2.

Furthermore, regarding amended claim 7 (and claims depending therefrom), Applicant respectfully submits that the combination of the teachings of Davies and Kownacki et al. do not disclose a sash frame interlacing configuration that

provides a vertical clearance between vertically aligned surfaces of the sash frame and master frame, the surfaces being integrally molded with the respective frames, and the clearance providing spaced for lifting the sash frame relative to the master frame for installation and removal.

Davies specifically teaches at col. 6, lines 62-65 that "there is insufficient space for the door to be lifted to release the lower edge so that the door cannot be removed in this manner". Rather, the bottom edge of the door (asserted to correspond to the claimed sash) is seated in the master the frame, and is then pivoted so that the upper edge moves into vertical registration beneath the upper member of the master frame. This is a generally lateral movement of the upper end of the door into position relative to the master frame. Once in position, the door cannot be lifted relative to the master frame. A separate snap-in element 78 (i.e. not integrally molded with master frame) is attached to the master frame to laterally retain the door in registration with the upper member of the master frame. But whether the snap-in element is present or not, the door cannot be lifted relative to the master frame. Kownacki discloses a casement window with hinges that prevent any vertical movement of the sash relative to the master frame. The combined references fail to teach all the limitations of claim 7, and Applicant submits that claim 7 is allowable for this additional reason.

Claim 9 (as amended) recites that the first cavity in an as-moulded and operating condition of the master frame and sash frame is open towards the lower horizontal master frame member, and that the first cavity receives therein an upper portion of the sash frame when the sash frame is lifted up relative to the master frame for installation and removal. In Davies, the cavity is cut into the upper horizontal member after injection molding, and is then fitted with the snap-in insert 78 that closes off the cavity. The door (sash) in Davies cannot be lifted up relative to the master frame (as explained earlier regarding claim 7), and so the cavity does not receive an upper portion of the sash frame as claimed. As well, according to Davies (col. 7, lines 1-7), the portion of the frame that is

removed for the installation of element 78 is "a length indicated by the lines 78A and 78B in Figure 6... this slot is then filled by snap-in element 78...". To the extent that the slot is alleged to form part of the interlacing configuration, Applicant submits that its length fails to traverse the mullion as required by claim 9.

In view of the above, the limitations of claim 9 (as amended) are therefore not disclosed by Davies, nor are they disclosed by Kownacki, and Applicant submits that claim 9 is allowable for these additional reasons.

Claim 17

Claim 17 was rejected as unpatentable over Davies in view of Arbetter (U.S. Pat. No. 5,189,841). In support of this rejection, the Examiner states, at page 4, that Davies practices all of the claimed elements of claim 17, except an integrally molded master frame and sash frame. The Examiner asserted that Arbetter discloses a method of making an integrally molded master frame 60 and sash frame 60, and that it would have been obvious to a skilled person to combine the teachings of Davies and Arbetter.

Applicant respectfully submits that the combination of Davies and Arbetter fails to establish a *prima facie* case of obviousness of the subject-matter of claim 17, for reasons similar to that set out above in regard to claim 2.

Applicant refers to the attached declaration of Gabriel Petta, filed herewith, and in particular to paragraphs 16-21. The facts set forth in Petta's declaration establish that the injection molding process of Arbetter, using the modular mold assembly 10, cannot be used to create a unitary frame having the shape taught by Davies. The frame members of Davies include hollow profiles (see, for example, the voids where 23, 34, 37, and 77 are printed or point to in Figure 2 of Davies) which could not possibly be formed using the segmented or modular mold of Arbetter. Applicant notes that Arbetter makes no reference to gas-assist or any

method for forming hollowed sections in a molded article. Furthermore, even if the separate mold segments could be secured to withstand injection pressures, there is no way to design segments that could be secured together to form a mold cavity forming frames with the features (including the mullion) of Davies.

In view of the above, Applicant submits that a person skilled in the art would not be led to combine the teachings of Arbetter to injection mold the frames of Davies. A skilled person would recognize that there would be no chance of successfully injection molding the frame of Davies. Applicant respectfully requests reconsideration and withdrawal of the rejection of claim 17, and submits that claim 17 is allowable.

Claims 21-23

Claims 21-23 are rejected as unpatentable over Davies in view of Kownacki et al., and further in view of Japanese Patent Publication 2002-227551.

As explained above, Applicant respectfully submits that it would not be obvious to a person skilled in the art to combine the teachings of Davies and Kownacki et al.

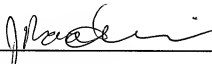
Absent the combination of Davies and Kownacki et al., Applicant submits that that a *prima facie* case of obviousness cannot be made based merely on the combination of Davies and Japanese Patent Publication 2002-227551 or Kownacki et al. and Japanese Patent Publication 2002-227551, as neither combination practices all of the elements of claim 21, or claims 22 and 23 depending therefrom.

For all of the reasons set-out above, Applicant respectfully submits that claims 21-23 are in condition for allowance, and requests that the Examiner's rejection of claim 21 as being obvious based on the combined teachings of Davies in view of Kownacki et al, and further in view of Japanese Patent Publication 2002-227551 be reconsidered and withdrawn.

Applicant respectfully submits that this application is in condition for allowance.

Respectfully submitted,

PETTA ET AL.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 10/811,154 Confirmation No.: 1119

Applicant : Pettal et al.

Filed : March 29, 2004

Title : FRAME ASSEMBLY FOR WINDOWS OR DOOR WITH
REMOVABLE SASH

Examiner : Strimbu, Gregory J.

TC/A.U. : 3634

Docket No. : 3445-151

Customer No.: : 001059

Commissioner for Patents
P.O. Box 1450,
Alexandria, VA 22313-1450

DECLARATION OF GABRIEL PETTA UNDER 37 CFR 1.132

1. I, Gabriel Petta, declare as follows under penalty of perjury:
2. I am the inventor of the present patent application identified above.
3. For at least the past 30 years I have been employed in the field of window design and fabrication. During my career, I spent many years as manager of quality control, design, and production at a window manufacturing facility producing over 100,000 units per year.
4. This experience has given me extensive knowledge regarding the advantages and limitations of various window designs and methods of their manufacture.

5. I am also named as inventor (or co-inventor) of the following U.S. patents and applications related to windows and window design:

Patent/ Publication Number	Title
6,745,523	Fastening member for a window and door assembly
6,173,541	Window assembly
5,987,826	Window assembly
20060086052	Slider window with continuous seals
20060059780	Frame assembly for window with vertically sliding sash
20050016073	Casement window system and components and hardware therefor
20040211132	Compressible frame guard device for a window or door

6. I have reviewed U.S. Pat. Nos. 5,280,686 (Davies), 6,749,797 (Kownacki et al.) and 5,189, 841 (Arbette).
7. Among the window frame designs and manufacturing processes with which I was familiar prior to the filing date of the present application were the designs and processes of the type shown in the patents listed in paragraph 5 above. This includes frames assembled from multiple frame members formed by extrusion or pultrusion and joined together at their ends, and frame shaving integral frame members formed by injection molding.
8. I have reviewed the U.S. Patent Office Action in the present case, which contains the following statement:

It would have been obvious to one of ordinary skill in the art to make the frames of Davies by using the integrally molding method steps, taught by Kownacki et al., ... (page 3)

9. This statement is incorrect. It would not have been obvious to one skilled in the art to make that combination, in view of the state of the art in window frame design and manufacturing as of the filing of the present application, for the following reasons:
10. Davies teaches an outer frame 10 supporting a fixed door panel 11 and a sliding door panel 12. The outer frame 10 is made of vertical and horizontal elements, each of which is formed from "the same profile simply cut to length from a continuously formed pultruded section" (col.3, lines 4-7).

11. Kownacki et al. discloses a method of making integrally molded master and sash frames 30, 50 for simple casement windows using a gas-assisted injection-molding process. The master frame 30 is of a relatively simple cross-sectional shape (compared to the frame 10 of Davies), because it is a casement window design, not a slider. In other words, the sash frame 50 is pivotally connected to the master frame 30, rather than slidably supported by the master frame. The master frame also has no mullion, but simply includes four peripheral frame members.
12. Using the gas-assist injection molding taught by Kownacki could not possibly be used to produce the slider window of Davies. In order to produce a finished article using injection-molding (with or without gas-assist), the product must be extractable from the mold. For an article to be removable, it must have an outer surface geometry that allows for the rigid mold halves (and any slider members) to be opened using translational or rotational movement. The frame 10, taught by Davies has an outer surface geometry that would prevent this necessary opening of the mold sections for release from an injection mold.
13. As a simple example, with reference to Figure 2 of Davies, the structure of the horizontal top rail 15 has a portion forming a generally "reversed C-shape" (shown at the upper right corner of figure 2 above reference numeral 15) that partially closes in on itself which would render the finished product impossible to remove from a mold. The space between the upstanding supports for the inner and outer sashes (i.e. where 58 is printed along the header, and where 26 is printed along the sill in Figure 2) presents similar problems. The issue is compounded when recognizing that these features must extend around all or most of the periphery of the frame (see, for example the left jamb in Figure 1, where 13 points), and further exasperated when considering the structure of the mullion 33 in Figure 1. The frames of Davies cannot be injection molded, and asserting that it would be obvious to apply the teaching of Kownacki to that of Davies so as to produce an injection molded slider window is inaccurate.
14. Furthermore, Davies teaches that the frame members are hollow, and that the shape of the cavity (identified by the examiner as being "shown in figure 2 above the sliding sash frame 12 where the reference character 77 is located") must be precise in order to allow proper assembly of the frame in which "the corner construction is completed by the insertion of a mechanical corner member 17 which is inserted into the hollow portion of the profile... to substantially fill the hollow interior of the profile..." (col. 3, lines 11-15). Davies teaches that each frame member is formed using a pultrusion process (col. 2, lines 58-60). In a pultrusion (or extrusion) process both the inner and outer surfaces of the frame members are in

contact with a die, so the position of the inner surface is controlled as precisely as the outer surface.

15. Kownacki discloses hollow regions in the frame members for reducing material requirements and to improve the insulating effect of the frame. The hollow regions are formed by injecting gas into the mold cavity to urge the resin outward against the inner surfaces of the die. This gas-assisted injection-molding process taught by Kownacki produces interior surfaces of a non-uniform shape and of varying wall thickness, as best shown in Figures 4 and 7, since only air pressure (rather than a solid die surface) is used to define its position. It would not be possible to use the gas-assist injection molding of Kownacki to produce the accurate inner wall surfaces as required by Davies.

16. The present U.S. Patent Office Action also contains the following statement regarding claim 17 of the present application:

It would have been obvious to one of ordinary skill in the art to manufacture the frame assembly of Davies by using the integrally molding method steps, taught by Arbetter,... (page 5)

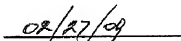
17. This statement is also incorrect. It would not have been obvious to one skilled in the art to make that combination, in view of the state of the art in window frame design and manufacturing as of the filing of the present application, for the following reasons:
18. Arbetter teaches a modular mold assembly 10 used for fabricating an integral window frame. The mold assembly 10 comprises mold segments or members that are connected together to form an outer assembly and an inner assembly. The inner and outer assemblies cooperate to define the mold cavity (col. 2, lines 57-60). Each mold member in the assemblies is individually removable from its assembly (col. 3, lines 34-35) to free the finished product from the mold. To hold adjacent mold members in place, Arbetter teaches the use of straps 35 and assembly rods 37.
19. In Arbetter, the window formed is a double hung window, with sashes 62, 64 slidably supported in a frame 60 (col. 6, line 7). The cross-sectional profiles of the frame members are, however, largely schematic. While integrally molded flanges are provided for supporting the sash, the requirement for installing/removing the sashes from the frame 60 appears to have been ignored. Arbetter also fails to satisfactorily address the issue of wind and water intrusion, and the disclosed structures do not include a mullion.

20. It seems very unlikely that the injection molding method taught by Arbetter could be used to produce the sashes and frame 60 of the double hung window of Arbetter. Injection molding of articles, particularly fairly large articles with relatively thin walled sections, requires very high injection pressures to fill the mold. The straps 35 and rods 37 would not be able to generate sufficient clamping force across all the joints in the mold to withstand the required injection pressure.
21. Furthermore, even ignoring these obvious deficiencies, it would in any event be impossible to design mold segments that could be strapped or bolted together to form a mold cavity of the shape required to manufacture the frames of Davies. The frame of Davies includes hollow sections necessary for assembly of the corner joints. But the injection method of Arbetter provides no possible way for forming hollow sections. Furthermore, as mentioned previously, the profile of the sections of Davies include returns, recesses, and mullion features that would make it impossible to separate even segmented die elements from the finished article.
22. In view of the above, the undersigned submits that it would not have been obvious to one of skill in the art to combine the teachings of Davies with either Kownacki or Arbetter.

Respectfully submitted,



Gabriel Petta



Date